REMARKS

The present communication is responsive to the Official Action mailed December 29, 2003. A petition for a three-month extension of the term for response to said Official Action, to and including June 29, 2004, is transmitted herewith.

It is understood from the simple statement that "claims 1-19 remain rejected" in the Official Action that the rejections stated in the prior Official Action mailed April 24, 2003, are being maintained, and that all of the presently pending claims thus are rejected under 35 U.S.C. § 102 and/or under 35 U.S.C. § 103 on *Barkan et al.*, EP 527,267 A1 ("*Barkan* '267") or on *Still et al.*, U.S. Patent 5,925,869 ("*Still* '869"). These are the only references characterized in the International Search Report as Category "X" and, hence, must be the references adverted to in the prior Official Action.

It is also understood that all of the presently pending claims are rejected under 35 U.S.C. § 112, second paragraph, as vague, based upon the statement in the prior Official Action that the claims "tend to be vague expressions of desired results."

The Examiner's point as to the previously filed response is well taken, and counsel apologizes for any confusion created by arguments apparently directed to canceled claims. Reconsideration and withdrawal of the § 112 rejection are respectfully requested.

The invention of claim 7 is recited in terms of structural elements which are believed to be entirely clear within the requirements of 35 U.S.C. § 112, second paragraph. Independent claim 7, paragraph (a) requires "a plurality of input channels." (Drawing Fig. 1, reference numeral 26a-26d.) The features of a single channel are described in detail in the specification at page 9, line 280 to page 11, line 342, and the other channels include similar elements. (P. 11, lns. 343-344.)

There is no lack of clarity in the claim term "a photodetector" used as one component of a channel. The remainder of claim 7, paragraph (a) states the overall result to be accomplished by each channel ("providing data elements representing light impinging on the photodetector of such channel"), but also includes positive structural recitations of "a signal processing and digitization circuit connected to the photodetector." The further recitation of what functions are performed by the "signal processing and digitization circuit" does not detract from this recitation. Moreover, the Official Action does not point out how or why a person of ordinary skill in the art would have any difficulty in understanding what is required to meet the structural and functional recitations in this paragraph of the claim. In the preferred embodiment set forth in the specification, the signal processing and digitization circuit includes a "signal processor 16" which determines whether the signal from the photodetector represents a mark or a space, *i.e.*, a light or dark element on the scanned object (p. 9, ln. 292 to p. 10, ln. 314). The signal processing and digitization circuit in the preferred embodiment further includes a "digitizer 18" which "detects transitions in the value of" the mark-space signal from processor 16, determines whether a particular transition is a transition from mark-to-space or vice-versa, and counts timing clock pulses to determine the duration of the interval between a transition which has just occurred and the last previous transition. In light of that disclosure, one skilled in the art would have no difficulty in understanding what is meant by a "signal processing and digitization circuit" which is "arranged to" supply data elements which include data denoting a transition as mark-to-space or space-to-mark, and data which denotes the interval between successive transitions.

Element (b) of claim 7 recites "means for" performing the function of exposing the photodetectors of the various channels "to light from the objects to be scanned . . . ." Such an expression is, of course, specifically authorized by statute. 35 U.S.C. § 112, ¶ 6. Corresponding structures set forth in the specification and drawings include the "optical elements 11" discussed at page 7, line 234 to page 9, line 279. Those particular optical elements include a holographic element in the form of a rotating disk bearing a plurality of holograms (62-70, Fig. 2) which act to sweep light from a plurality of light sources, and also to sweep the field of view of the plural photodetectors, along the various paths 50a-50d (Fig. 1). Other, different corresponding structures are found at page 16, line 537 to page 17, line 567. Of course, the concept of providing light to a photodetector so that the photodetector represents an optical property (*e.g.*, reflectivity) of objects to be scanned "at a series of points along a scanning path" is the basic function found in essentially every bar code scanner, and the Official Action has not pointed out how or why one skilled in the art would have difficulty in understanding what is meant by this functional recitation in a means-plus-function clause.

Paragraph (c) of claim 7 offers a further means-plus-function recitation of an element which accepts data elements "from each channel" and which outputs "a stream of data elements including data elements from said plurality of channels." One structure corresponding to this means-plus-function recitation includes a FIFO (first-in, first-out) buffer 20 associated with each channel and a multiplexer 22. (Fig. 1; p. 11, ln. 258 to p. 12, ln. 384.) Other corresponding structure is found at page 16, line 515 to page 16, line 536. Here again, the Official Action does not point out why anyone would have difficulty in understanding the function to be performed by the

"data stream means" of paragraph (c), or understanding the scope of the means-plus-function recitation.

Finally, claim 7 recites a "decoder" in paragraph (d) of the claim. Decoders are well-known elements used throughout the bar code industry; one such decoder is described at page 12, line 385 to page 13, line 418 of the specification. Indeed, it is noted that *Still* '869, relied upon for rejection, similarly claims a "decoder" with even less description than is found in claim 7, paragraph (d). A decoder as known in the art is simply a device which can examine a series of signals and determine whether or not they represent a bar code, and if so, what that bar code denotes. Here again, no reason has been offered as to why a person of ordinary skill in the art would not understand the structural recitation of the decoder. The test for whether a claim meets § 112, second paragraph, is simple: if those skilled in the art would understand what is claimed, so that the claim provides clear warning to others as to what constitutes infringement, it meets the definiteness requirement of the statute. M.P.E.P. § 2173.02. In this regard, "functional language does not, in and of itself, render a claim improper." M.P.E.P. § 2173.05(g). Independent claim 7 clearly meets § 112, second paragraph, and the rejection must be withdrawn.

Independent claim 10 contains a recitation in paragraph (a) of a "plurality of input channels" similar to the corresponding recitation of claim 7. However, in claim 10, the input channels need not incorporate the specific signal processing and digitization circuit of claim 7 and need not provide data elements in the form of "transition data elements" as discussed above. The recitation that at least one of the channels is "a partially active channel having active and inactive intervals" should be read in context with the recitation in paragraph (b) of "means for exposing" the photodetectors to light. As discussed above, a means for

exposing is arranged to perform the basic bar code scanning function of exposing the photodetectors to light from a series of points along a scanning path. In claim 10, however, the exposing means is arranged "so that data elements provided by each said partially active channel during at least a part of each said inactive interval do not constitute meaningful data denoting light from objects to be scanned." That is, the "exposing means" is arranged so that the partially active channels generate meaningless data during the inactive intervals and meaningful data during active intervals. This action is explained in greater detail at page 14, lines 443-469 of the specification. As there described, during the "inactive intervals" light used to illuminate the object and/or the field of view of the photodetector associated with a particular channel is blocked or deflected away from the area where objects are to be read. In the particular embodiment referred to, this blocking or deflection occurs at transitions between adjacent holograms of a holographic scanning wheel. The data generated during these inactive intervals is meaningless; it cannot represent the real optical properties of an object to be scanned.

Paragraph (c) of the claim refers to a "data stream means" which, as mentioned previously, outputs a stream of data elements including data elements from the plural channels. Claim 10 further particularizes the functions to be performed by this means-plus-function element to the effect that the data stream means provides the data elements for each "active interval" of each of the "partially active channels" in "a single series of consecutive data elements within said stream." This is shown in Fig. 3. Each series 82a, 82b, 82c, etc. represents a single series of consecutive data elements from a single active interval of a single channel. (*See* p. 14, lns. 457-469; p. 13, lns. 434-436.) In a preferred embodiment

disclosed in the specification, the multiplexer is synchronized with the operation of the optical element, such as the holographic disk, so that information gathered in a single active interval is presented as a single series within the data stream. As will be appreciated, this greatly facilitates operation of a decoder; the decoder is looking for a pattern of consecutive values which denotes a meaningful bar code. By assuring that the data within a single active interval falls into a single series of consecutive values within the data stream supplied to the decoder, the system avoids interrupting a series of values which denote a meaningful bar code with a transition to another series from another channel.

Independent method claims 15 and 19 respectively include method steps analogous to apparatus claims 7 and 10, discussed above, and should be readily understandable in light of that discussion. The dependent claims are believed to be easily understandable in light of the foregoing explanation. Again, it is stressed that the apparatus claims include recitations of structural elements either in structural element form or in the statutorily authorized means-plus-function form, whereas the method claims include positive recitations of series of steps which clearly will produce the "desired result." The present claims do not merely recite a "desired result." If any further explanation or discussion would be helpful, the Examiner is respectfully requested to telephone undersigned counsel to discuss further the manner in which the present invention works, and the manner in which the claim language properly calls out the necessary steps and apparatus elements.

As noted above, all of the presently pending claims are apparently rejected under 35 U.S.C. § 102 and/or 35 U.S.C. § 103 on *Still* '869 or *Barkan* '267. Reconsideration is respectfully requested.

As to independent claim 10, *Barkan* '267 clearly lacks the elements set forth in paragraphs (b) and (c) of the claim. *Barkan* '267 discloses a bar code reader such as a "wand-type bar code reader 10," which may be manually scanned across a bar code. This scanner includes either a single photodetector feeding two different signal conditioning and digitization circuits (Fig. 4) having different signal processing characteristics (*see* col. 12, lns. 1-9), thus providing two separate streams of data elements from digitizers 45 and 46, which are fed as two separate streams to two separate inputs of a microprocessor decoder 47. In an alternate embodiment (Fig. 5), the single photodetector of Fig. 4 is replaced by two separate photodetectors associated with the two different digitization channels (col. 13, lns. 27 *et seq.*), but here again, the streams of data elements derived from digitizers 54 and 58 of the two channels are never merged with one another before being passed to the decoder 47.

Nothing in *Barkan* '267 has been pointed out as even suggesting that the structures which expose photodetector or photodetectors associated with different channels be arranged to expose the photodetector or photodetectors associated with plural channels in such a way as to provide active intervals interspersed with inactive intervals, during which the data derived by the various channels is meaningless. The reference simply does not contemplate active and inactive intervals associated with the various channels. Therefore, *Barkan* '267 does not teach or suggest the exposing means recited in paragraph (b) of the claim. Nor has anything in the reference been pointed out as suggesting the "data stream means" recited in paragraph (c) of the claim. As noted above, the data stream means of paragraph (c) is arranged to merge data from plural channels in a particular way, namely, so that the data elements for each "active interval" of a channel having active and

inactive intervals is reflected in a "single series of consecutive data elements" within a stream of merged data elements. The only element of the *Barkan* '267 system which receives data from plural channels is the decoder 47 itself. Inasmuch as the channels do not have active and inactive intervals, nothing in the reference would suggest that the decoder 47 operate to merge data so that data from a single active interval is reflected in a series of consecutive data elements within a merged stream. Accordingly, *Barkan* '267 clearly lacks the structures set forth in elements (b) and (c) of claim 10.

Directly analogous reasons apply with respect to method claim 19.

The same distinctions apply with regard to the rejections of claims 10 and 19 on *Still* '869. *Still* '869 merely refers to receiving data streams from "a first bar code reader" and a "second bar code data stream BCDS2 from a second bar code reader." (Col. 3, lns. 46-53.) The reference offers no particulars whatsoever as to the bar code readers themselves. Nothing has been pointed out as offering any reason to believe that these bar code readers include anything which would cause the individual channels associated with the signals to have active and inactive intervals. The reference, thus, fails to meet paragraph (b) of claim 10, or paragraph (b) of claim 19. Nothing in *Still* '869 has been pointed out as suggesting that signals having active and inactive intervals should be merged in the manner recited in paragraph (c) of claim 10 or paragraph (c) of claim 19, so as to provide series of consecutive data elements, each series incorporating the data elements from a single active interval. *Still* '869 thus lacks the elements set forth at paragraphs (b) and (c) of claim 7 and the corresponding method steps recited in paragraphs (b) and (c) of claim 19. The rejection on this reference also must be withdrawn.

The rejection on *Still* '869 should also be withdrawn as to independent apparatus claim 7. As pointed out above, claim 7 requires that the signal processing and digitization circuit of each channel produce data in the form of "transition data elements," each such element incorporating both a designation of the transition as mark-to-space or space-to-mark and data denoting the duration of an interval between successive transitions. The *Still* '869 system is only operative with respect to incoming signal streams BCDS1 and BCDS2 in the form of signals which are either logically high or logically low. In these signals, the duration of each high and low period reflects the length of a mark or space. In effect, the individual pulse generators (14, 30, Fig. 1; or 30, 32, Fig. 2) rectify the signals so that "defaulting high and defaulting low bar code data streams" are both provided to the OR gate (18, Fig. 1; or 38, Fig. 2) in such a way that one such stream is "preserved," where the other stream is "in effect, converted to the default condition of the other data stream." (*Still* '869 col. 1, lns. 53-59.) Nothing in this reference has been pointed out as suggesting how one could apply its teachings to a system in which each channel is arranged to provide transition data elements as recited in paragraph (a) of claim 7. The rejection of claim 7 on *Still* '869 must be withdrawn.

The rejection of claim 7 on *Barkan* '267 must also be withdrawn. Nothing in *Barkan* '267 has been pointed out as suggesting the use of transition data elements as recited in paragraph (a) of claim 7. Indeed, digitizers 45 and 46, insofar as one can determine from the reference text, are simply thresholding devices which output "pulse signals," *i.e.*, high/low values, depending on whether the photodetector is looking at a mark or space. (*See* col. 11, lns. 46-55.) Further, nothing in *Barkan* '267 has been pointed out as suggesting "data stream means" which accepts data from plural

channels and outputs "a stream of data elements including data elements from said plurality of channels" coupled with a "decoder operative to examine said stream of data elements," as recited in paragraphs (c) and (d) of the claim. Again, the only element in the *Barkan* '267 structure which receives data from the plural channels is the decoder itself, element 47 in Figs. 4 or 5. That decoder decodes based on the individual data streams. (Col. 19, ln. 47 to col. 20, ln. 5.) In the event that decoding of the individual channels is unsuccessful, the decoder executes an algorithm for selecting supposedly error-free data from the two channels and combining these two. (Col. 20, lns. 5-53.) However, a decoder which receives two separate data streams, and on occasion, merges portions of the individual data streams, does not meet the explicit language of paragraphs (c) and (d) of claim 7. For all of these reasons, the rejection on *Barkan* '267 must be withdrawn as to independent claim 7.

The rejection should be withdrawn as to dependent claims 3-5, 8 and 9 as well. In particular, claim 9 specifically recites that the data stream means includes a FIFO buffer associated with each channel and a multiplexer having inputs connected to the outputs of the FIFO buffers. Such an arrangement is manifestly antithetical to the concepts taught in *Barkan* '267 of supplying two separate streams to a decoder, and is also antithetical to the OR-gate arrangement of *Still* '869.

For reasons directly analogous to the reasons advanced above with respect to claim 7, the §§ 102 and 103 rejections of independent method claim 15 and dependent claims 12-14 and 16-18 should also be withdrawn.

As it is believed that all of the objections and rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance of all claims in the application are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: June 29, 2004

Respectfully submitted,

By_____

Marcus J. Millet
Registration No.: 28,241
LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK, LLP
600 South Avenue West
Westfield, New Jersey 07090
(908) 654-5000
Attorney for Applicant

501456_1.DOC